TL-1 - Develop Mass Transit

Benefit/Cost of reducing CO_2e:
New Mexico: 13.4 MMt between 2007-2020; 1.3% of 2020 emissions
N. Carolina: 31.3 MMt between 2007-2020; 1.1% of 2020 emissions

Assessment: High Priority - Bin B

This is already in the long-range planning for the Wasatch Front. The mass transit system needs to fully-integrated and supported with adequate funding.

A longer-term strategy needs to be done in conjunction with land-use planning. For it to work, mass transit options need to be convenient, reliable, and affordable. The strategy should also consider government programs (Eco-pass), educational opportunities, and incentives. Enhanced subsidies for mass transit (e.g. fare reduction) are needed. The State can assist with obtaining rights-of-way and park and ride lots, traffic signals (pref. to high-occupancy vehicles).

Zipcars/Freedom cars (shared ownership), bike carriers, pedestrian-friendly city planning are all measures that compliment mass transit.

Public support of the 2006 initiative was high. The Legislature has been supportive of transit, but they have concerns with priorities and the process used to set priorities.

TL-2a[1] - Promote Low-Carbon Vehicle Fuels and Technologies (statewide)

Benefit/Cost of reducing CO_2e:
Arizona: 6.2 MMt between 2007-2020; 0.7% of 2020 emissions
New Mexico: 9.1 MMt between 2007-2020; 1.7% of 2020 emissions; $-13/ton
Oregon: 1 MMt between 2007-2025; 1% of 2025 emissions; Cost effective
N. Carolina: 25.8 MMt between 2007-2020; 1.2% of 2020 emissions

Assessment: High Priority – Bin A

Infrastructure limitations have made promotion of low-carbon fuels difficult difficult. State agencies and school districts may be a place to start. Vehicles incentives could include tax incentives, HOV lane access, and parking advantages. Technology changes could include tax incentives and rebates, pay as you drive insurance and other tools.

There may not be any low-hanging fruit with this policy option. Additional analysis is needed.

[1] From TL 2; includes TL 8 and TL 9

TL-2b[2] - State Fleet Lead by Example

Benefit/Cost of reducing CO_2e:
Arizona: 0.4 MMt between 2007-2020
Oregon: Cost effective

Assessment: High Priority – Bin A

The State should lead by example in the purchase of low-carbon vehicle fuels and technologies. School districts may be another place to start.

Infrastructure limitations have made alternative fuel requirements for State fleets difficult to implement.

[2] From TL 2

TL-4 - Clean Car Program/Other EE program (California standards)

Benefit/Cost of reducing CO_2e:

Arizona: 32.5 MMt between 2007-2020; 3.4% of 2020 emissions; $-90/ton
New Mexico: 10.4 MMt between 2007-2020; 1.9% of 2020 emissions; $-117/ton
Colorado: 14% reduction potential; $-100/ton
Montana: 5.2 MMt between 2007-2020; 2% of 2020 emissions; $-100/ton
Oregon: 6.24 MMt between 2007-2025; 6.5% of 2025 emissions; Cost effective
N. Carolina: 44.5 MMt between 2007-2020; 3% of 2020 emissions; $-100/ton

Assessment: High Priority – Bin C

In studies conducted in several western states, the adoption of a clean car program[3] has consistently been ranked as one of the most cost-effective GHG emissions reduction strategies. This option is also likely to have a large impact on total emissions, with projections ranging from 1.9 to 6.5 percent total statewide emissions reduced.

Only EPA and the State of California have the authority under the Federal Clean Air Act (CAA) to set emission standards for motor vehicles. Since 1990, other states are allowed to adopt the California program, but are otherwise prohibited from setting their own emission standards.

The Federal Tier 2 and California Low Emission Vehicle II (LEV-II) programs began their phase-in period beginning with the 2004 model year vehicles. Both programs set emission standards for light-duty vehicles such as passenger cars, trucks and sport utility vehicles. Both programs become progressively more stringent over several years and provide significant reductions in exhaust and evaporative vehicle emissions, including oxides of nitrogen (NOx), volatile organic compounds (VOCs) or non-methane organic gasses (NMOG) and carbon monoxide (CO). The programs differ in that the California fleet average applies to NMOG and the Federal fleet average limit applies to NOx. A side benefit of reducing NMOG is that it also reduces emissions of hazardous air pollutants (HAPs) or air toxics.

EPA does not regulate GHG emissions from vehicles. However; recent California state legislation[4] required the California Air Resources Board (CARB) "to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction in greenhouse gases emitted by motor vehicles" starting in 2009. Under the California regulations, vehicle manufacturers are allowed to meet the GHG emissions standards on a fleet-average basis.

Finally, California requires a percentage of each manufacturer's fleet to be Zero Emission Vehicles (ZEVs). The Federal Tier 2 program has no such requirement. The ZEV standards provide about an additional 3% reduction in total emissions. Several states have adopted the CA LEV-II emissions standards, including GHG emission requirements; but did not include the California ZEV mandates.

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[3] Setting mandatory GHG emissions standards for light-duty vehicles
[4] Assembly Bill 1493 or the "Pavley Act"

There is significant debate in quantifying the emissions benefit of the California LEV-II program in comparison to the Federal Tier 2 program. Vehicle manufacturers claim there is only a 1 or 2 percent emissions reduction for NOx and VOCs. Several state agencies estimate up to a 15 to 30% emissions reduction in NOx, VOCs and GHG by 2030. These estimates are not inconsistent, but present a different perspective of the same data. The manufacturers will contrast the large reductions provided by Tier 2 and LEV-II standards in comparison to previous emission standards. State regulatory agencies generally look forward and focus on the differences between the Tier 2 and LEV-II emissions standards and may include a ZEV program benefit. Until a significant penetration of the vehicle fleet occurs, it may take several years to see a significant emissions benefit from implementing California LEV-II.

The estimated incremental cost to implement the California LEV-II Emission Standards is provided in Table 1.

Tier	Year	Average cost of control per vehicle	
		PC/LDT1 (Passenger cars and small trucks/SUVs)	LDT2 (Large trucks/SUVs)
Near-term	2009	$17	$36
	2010	$58	$85
	2011	$230	$176
	2012	$367	$277
Mid-term	2013	$504	$434
	2014	$609	$581
	2015	$836	$804
	2016	$1,064	$1,029

Table 1: Potential Vehicle Cost Increase to Implement California Clean Vehicle Emission Standards
(Source: http://www.arb.ca.gov/regact/grnhsgas/fsor.pdf, pg 11)

Most of the estimated cost increase is due to the Pavley GHG requirements. However, it is anticipate much of any increased vehicle cost will be recaptured within a few years due to the resultant fuel savings.

This program is politically controversial and has been the focus of several lawsuits, primarily between the automobile industry and a handful of states. There is at least one federal bill under consideration by Congress that would disallow states from making their own standards for vehicle GHG emissions.

TL-5[5] - Smart Growth

Benefit/Cost of reducing CO_2e:
Arizona: 26.7 MMt between 2007-2020; 2.4% of 2020 emissions
New Mexico: 13.4 MMt between 2007-2020; 1.3% of 2020 emissions
Montana: 0.26 MMt between 2007-2020; 0.1% of 2020 emissions
Oregon: 0.4 MMt between 2007-2025; 0.4% of 2025 emissions; Cost effective
N. Carolina: 50.3 MMt between 2007-2020; 3% of 2020 emissions

Assessment: Medium Priority – Bin B

This is an important, but a longer-term, strategy.

Among the measures that should be considered are planning, infill development, increased density, transit-oriented development, pedestrian-friendly (e.g. Portland measures) and congestion management. Envision Utah should be used as a guide for this policy option. An effective strategy should also include education and could include incentives.

[5] Includes TL-14, TL-b

TL-6 - Idle-Reduction Program/Truck Stop Electrification

Benefit/Cost of reducing CO_2e:
Arizona: 11.8 MMt between 2007-2020; 0.8% of 2020 emissions; $-22/ton
New Mexico: 6.3 MMt between 2007-2020; 0.7% of 2020 emissions; $4/ton
Montana: 0.093 MMt between 2007-2020
N. Carolina: 1.9 MMt between 2007-2020; 0.1% of 2020 emissions; $-22/ton

Assessment: Medium Priority – Bin B

An idle reduction program would have NOx reduction benefits. Truck stops and school buses should be targeted. Most of the idling for trucking occurs at the loading/unloading point

The Wasatch Front Regional Council allocated funding to idle reduction. WFRC estimated criteria pollution reduction in its report (Sapp Brothers)

Utah Clean Cities is working with the National Energy Foundation to provide educational materials for idle reduction. UTA use block heaters and has drivers shut buses off after 10 minutes.

California and Colorado have a idling program with school buses. In California, a driver of a school bus or vehicle, transit bus, or other commercial motor vehicle must manually turn off the engine upon arriving at a school and to restart no more than 30 seconds before departing. A driver is subject to the same requirement when operating within 100 feet of a school and is prohibited from idling more than five minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations.[6]

In 2005, California approved a measure to further limit idling of new and in-use sleeper berth equipped diesel trucks. Next year, 2008 and newer model year heavy duty diesel engines must be equipped with a non-programmable engine shutdown system that automatically shuts down the engine after five minutes of idling or optionally meet a stringent oxides of nitrogen idling emission standard. The in-use truck requirements require operators of both in-state and out-of-state registered sleeper berth equipped trucks to manually shut down their engine when idling more than five minutes at any location within California beginning in 2008.[7]

Policy makers should work with local municipalities on the issue and may consider DOE/EPA (CMAQ, Clean School Bus USA program.[8])

[6] http://www.arb.ca.gov/toxics/sbidling/sbidling.htm
[7] http://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm
[8] http://www.epa.gov/cleanschoolbus/

TL-12 - Speed Limit for Commercial Trucks/Other Lower Speed Limits/ Enhanced Enforcement of Speed Limits

Benefit/Cost of reducing CO_2e:
Arizona: 5.2 MMt between 2007-2020; 0.3% of 2020 emissions; $35/ton
New Mexico: 2.8 MMt between 2007-2020; 0.3% of 2020 emissions

Assessment: Low Priority – Bin D

While this strategy would be politically difficult to implement, it warrants further study.

The American Trucking Association suppors a mandated 68mph speed limit for safety and fuel economy reasons.

TL-15[9] - Trip Reduction, Rideshare, Vanpool, Telecommuting

Benefit/Cost of reducing CO_2e:
N/A

Assessment: Medium Priority – Bin D

These measures are aimed at reducing vehicle miles traveled and thereby help reduce fuel consumption and GHG emissions. Such programs are already in place with UTA and would need to be enhanced to result in additional GHG emission benefits.

[9] Includes TL-16

TL-a[10] - Education Program

Benefit/Cost of reducing CO_2e:
N/A

Assessment: High Priority – Bin A

Develop/fund education program focusing on topics to include vehicle choice, transit options, vehicle maintenance, driving habits/speeding, and proper tire inflation.

[10] Includes TL-10

TL-c - Explore Flex-car/Zipcar Program Options

Benefit/Cost of reducing CO_2e:
N/A

Assessment: Medium Priority – Bin D

The Flex-car[11]/Zipcar[12] members purchase a card which entitles them to use vehicles which are strategically placed around the community. Cars were parked around the city for members to drive by the hour instead of owning their own vehicles.

The Zipcar website cites the following benefits:

- Over 40% of our members decide against purchasing a car, or end up selling their car.

- Car usage of individuals is reduced by as much as 50%.

- Members use the most efficient means of transportation for the task — walking, biking, public transportation, taxi or Zipcar.

- Each Zipcar replaces over 20 privately-owned vehicles. Older cars are replaced with new ones that have more stringent pollution controls

This strategy needs further research. UTA is currently looking into it. This type of strategy seems to work in higher-density areas and could compliment commuter rail.

A similar strategy didn't work in Denver.

[11] http://www.flexcar.com/
[12] http://www.zipcar.com/